

Date: Wednesday, 21/01/2009 2:43:01 PM
 User: Julie Dawson

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: ROUND BILLET 17-4
Job Number	: 45036		
Estimate Number	: 10039		
P.O. Number	:	Part Number	: D6104003
This Issue	: 21/01/2009 S.O. No. :	Drawing Number	: D6104 REV B
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: 1/1 Type : MACHINED PARTS	Drawing Revision	: B
Previous Run	: 43919	Material	:
Written By	:	Due Date	: 04/02/2009 Qty: 10 Um: Each
Checked & Approved By	: <u>JUD 09.01.21</u>		
Comment	: Est. B: 01.09.04 Revised Step 2 SM		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0

PG

PURCHASING



Comment: PURCHASING

Issue P/O: 8027C209101122

a) Description: S.S round billet

b) Ø3.25" x 3.80" long

c) Tolerance on all dimensions are +0.030"/-0.000"

(10)

d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)

e) One blank makes 2 parts

f) Material certification required

2.0

D6104003P

17-4 SS Roundbar 3.25"OD



Comment: Qty.: 1.0000 Each(s)/Unit Total: 10.0000 Each(s)
 17-4 SS Roundbar 3.25"OD

3.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure material certification is attached

C209101122 (10)

4.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

Ensure Material certification comply to Dwg D6104

JUD 09/03/20 (10)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 21/01/2009 2:43:01 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: ROUND BILLET 17-4

Job Number: 45036

Part Number: D6104003

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

mh 09/03/20

(10)

6.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

10 09/03/20

Job Completion



U 09.03.20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

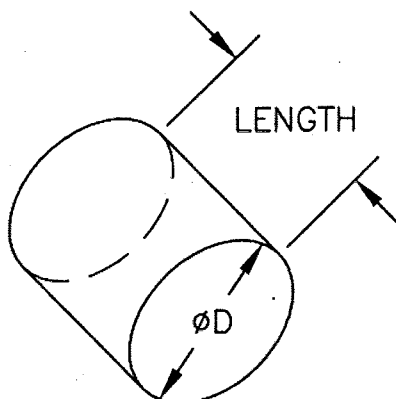


DESIGN RF	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29

SPECIFICATION CONTROL DRAWING



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 145030

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



A. M. Castle & Co.

PACKING SLIP

Page 1 of 1

Pack Slip No:27135

Ship From: Castle Metals Montreal 835-Selkirk Avenue Pointe Claire, QUEBEC H9R 3S2		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Deliver To:
Date Shipped 10-FEB-09	F.O.B. ORIGIN	Freight Terms Prepaid	Carrier	BOL No 25601	Delivery No 2084830	

Shipment Details

Order No 165502	Line No 1	Item No 42470.MO	Description 3.2500.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 3.8 IN ()		Shipped Qty 10 PCS
Purchase Order No 8027		Part Number	Ordered Qty 10 PCS	Shipped Qty 10 PCS	Backorder Qty
Details					
	Mill		Heat Number A10478	Mech Id	Shipped Qty 10 PCS

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

This material has been received and inspected by:

Date:



PO BOX 977
SYRACUSE, NY 13201-0977

Certificate of Test

S
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O
A M CASTLE, INC
3400 N WOLF RD
FRANKLIN PARK, IL 60131

S
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O
A M CASTLE, INC
26800 MILES RD
BEDFORD HEIGHTS, OH 44146

OUR ORDER NO.
P5-16007-8-02

DATE
12/02/08

CUSTOMER ORDER NO
10-40881

CUSTOMER REQ NO

DISTRICT
B PARSONS

SHIPPED FROM
SYRACUSE

DESCRIPTION OF MATERIAL

CRU 17-4PH RT A IAC 42470
AMC-3174-10 REV 8 ASME-SA564-07ED T630 ASTM-A564-04 T630 AMS-2303E
AMS-5643R (EX SURFACE) AISI 630 UNS# S17400
DFARS 252.225-7014 ALT 1

SIZE
3.250 RD

HEAT NO.

CHEMICAL ANALYSIS

HEAT NO.	C	MN	P	S	SI	NI	CR	MO	CU	CB	TA
A10478	.043	.56	.031	.027	.53	4.39	15.19	.20	3.21	.29	.010

QUANTITY HEAT NO.

MECHANICAL PROPERTIES

2913 # A10478 TENSILE PSI YLD.2%PSI 4%ELONG4D RED/AREA% HARDNESS
BHN 342

CAPABILITY PHYSICALS AFTER 900 DEG. F. - 1 HR. AIRCOOL:
204,710 174,900 13.6 49.9 BHN 415

MACRO TEST OK

FERRITE 5 %

MAGNAFLUX F/S = 0/0

ELECTRIC FURNACE AOD MELTED

REDUCTION RATIO: 27.5:1

MATERIAL SOLUTION TREATED AT 1900 DEG. F. HELD 45 MINUTES AT TEMPERATURE -
AIRCOOLED.

CRUCIBLE MATERIALS CORP. VENDOR #18610.
MATERIAL INGOT CAST.
NAFTA - YES

CASTLE METALS CORP.
DATE RCVD 12/18/08
IAC 42470
APPROVED BY [Signature]

MATERIAL FREE FROM MERCURY CONTAMINATION AT TIME OF SHIPMENT. NO WELD REPAIR PERFORMED, AND MATERIAL MELTED IN U.S.A.

THE ABOVE MATERIAL WAS MANUFACTURED AND TESTED ACCORDANCE WITH ABOVE
SPECIFICATIONS AND IS IN CONFORMANCE WITH THE SPECIFICATION REQUIREMENTS.
CRUCIBLE MATERIALS CORPORATION ACTING BY AND THROUGH ITS SPECIALTY METALS DIVISION

CERTIFIED BY

[Signature: Dana Cusano]

DANA A. CUSANO - QUALITY ASSURANCE REPRESENTATIVE